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1 [Session 13: audio processing and retrieval: Embedded audio coding \(EAC\) with implicit auditory masking](#)

Jin Li

December 2002 **Proceedings of the tenth ACM international conference on Multimedia**

Publisher: ACM Press

Full text available: pdf(709.64 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

An embedded audio coder (EAC) is proposed with compression performance rivals the best available non-scalable audio coder. The key technology that empowers the EAC with high performance is the *implicit auditory masking*. Unlike the common practice, where an auditory masking threshold is derived from the input audio signal, transmitted to the decoder and used to quantize (modify) the transform coefficients; the EAC integrates the auditory masking process into the embedded entropy coding. Th ...

Keywords: JND threshold, audio compression, bitstream assembler, entropy coding, implicit auditory masking, scalable, sub-bitplane

2 [A Hardware-Friendly Wavelet Entropy Codec for Scalable Video](#)

Hendrik Eeckhaut, Harald Devos, Benjamin Schrauwen, Mark Christiaens, Dirk Stroobandt

March 2005 **Proceedings of the conference on Design, Automation and Test in Europe - Volume 3**

Publisher: IEEE Computer Society

Full text available: pdf(329.69 KB) Additional Information: [full citation](#), [abstract](#)

In the RESUME project we explore the use of reconfigurable hardware for the design of portable multimedia systems by developing a scalable wavelet-based video codec. A scalable video codec provides the ability to produce a smaller video stream with reduced frame rate, resolution or image quality starting from the original encoded video stream with almost no additional computation. This is important for portable devices that have different Quality of Service (QoS) requirements and power restricti ...

3 [Video adaptation: Analysis of rate-distortion functions and congestion control in scalable internet video streaming](#)

Min Dai, Dmitri Loguinov

June 2003 **Proceedings of the 13th international workshop on Network and operating systems support for digital audio and video**

Publisher: ACM Press

Full text available: pdf(1.21 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Internet streaming applications usually have strict requirements on bandwidth, delay, and

packet loss, while the current best-effort Internet does not provide any Quality-of-Service (QoS) guarantees to end flows. To achieve a higher level of QoS for the end user, Fine-granular Scalability (FGS), which has both strong error-resilience and flexibility during streaming over variable-bandwidth channels, has been accepted as a standard coding scheme for the video streaming profile in MPEG-4 [19]. Not ...

Keywords: MPEG-4 FGS, R-D modeling, congestion control, scalable coding, video streaming

4 Poster 1: systems track: A new selection method for H.264 based fine granular scalable video coding



Won-Hyuck Yoo, Jihun Cha, Won-Sik Jeong, Kyuheon Kim, Gwang Hoon Park
November 2005 **Proceedings of the 13th annual ACM international conference on Multimedia MULTIMEDIA '05**

Publisher: ACM Press

Full text available: pdf(219.93 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this paper, we introduce a new selection method for H.264 based Fine Granular Scalable video coding. It selectively uses the temporal-prediction data inside the enhancement-layer only when those data can significantly reduce the temporal-redundancies, thereby the improvement of the overall coding efficiency is accomplished by minimizing the drift errors. Simulation results show that the proposed scheme has 1~3 dB better coding efficiency than H.264-based FGS coding scheme.

Keywords: FGS, H.264, MPEG-4, video coding

5 Reception and posters: A new scanning method for H.264 based fine granular scalable video coding



Won-Sik Cheong, Kyuheon Kim, Gwang Hoon Park
November 2003 **Proceedings of the eleventh ACM international conference on Multimedia**

Publisher: ACM Press

Full text available: pdf(418.61 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this paper, we introduce a new scanning method for H.264 based Fine Granular Scalable video coding, which can significantly improve the subjective picture quality of a decoded scalable video. Since the network condition is fluctuated, it is often happened that the important part of the streaming data, especially video sequences, cannot be transmitted, and thus a viewer watches less interesting parts of the sequences or poorer quality of pictures in important regions. Therefore, this paper pre ...

Keywords: AVC, FGS, H.264, MPEG-4, video coding, water ring

6 Motion editing and compression: Wavelet compression of parametrically coherent mesh sequences



Igor Guskov, Andrei Khodakovsky
August 2004 **Proceedings of the 2004 ACM SIGGRAPH/Eurographics symposium on Computer animation**

Publisher: ACM Press

Full text available: pdf(2.36 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We introduce an efficient compression method for animated sequences of irregular meshes of the same connectivity. Our approach is to transform the original input meshes with an anisotropic wavelet transform running on top of a progressive mesh hierarchy, and progressively encode the resulting wavelet details. For temporally coherent mesh sequences we get additional improvement by encoding the differences of the wavelet coefficients. The resulting compression scheme is scalable, efficient, and ...

7 Configurable REC



Gerardo Cisneros

May 1994 **ACM SIGPLAN Notices**, Volume 29 Issue 5**Publisher:** ACM PressFull text available: [pdf\(918.63 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

This paper describes CREC, a library of C functions for compiling and executing REC programs whose operators and predicates are provided by the caller. Given a C program with a menu-based interactive interface, REC can be added as a programming language to the user interface by assigning menu choices to REC operators and predicates through entries in a table, and linking in the appropriate functions in CREC. Being a very concise language, REC programs are easy to write in an interactive context. ...



8 Proof-aided design of verified hardware



Holger Busch, Gerd Venzl

June 1991 **Proceedings of the 28th conference on ACM/IEEE design automation****Publisher:** ACM PressFull text available: [pdf\(720.11 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

9 Layered unequal loss protection with pre-interleaving for fast progressive image

transmission over packet-loss channels

Jianfei Cai, Xiangjun Li, Chang Wen Chen

November 2005 **ACM Transactions on Multimedia Computing, Communications, and Applications (TOMCCAP)**, Volume 1 Issue 4**Publisher:** ACM PressFull text available: [pdf\(2.06 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Most existing unequal loss protection (ULP) schemes do not consider the minimum quality requirement and usually have high computation complexity. In this research, we propose a layered ULP (L-ULP) scheme to solve these problems. In particular, we use the rate-based optimal solution with a local search to find the average forward error correction (FEC) allocation and use the gradient search to find the FEC solution for each layer. Experimental results show that the executing time of L-ULP is much ...

Keywords: Progressive image transmission, forward error correction, joint source-channel coding, packet loss, unequal loss protection



10 Two bit/pixel full color encoding



Graham Campbell, Thomas A. DeFanti, Jeff Frederiksen, Stephen A. Joyce, Lawrence A. Leske

August 1986 **ACM SIGGRAPH Computer Graphics , Proceedings of the 13th annual conference on Computer graphics and interactive techniques SIGGRAPH '86**, Volume 20 Issue 4**Publisher:** ACM PressFull text available: [pdf\(6.94 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Realism in computer graphics typically requires using 24 or more bits/pixel to generate an image. This paper describes a method developed by the authors called "Color Cell Compression" or "CCC" that preserves at least a limited animation and local update capability yet yields extraordinary-looking color images in approximately two bits/pixel independent of image complexity. Three intermediate methods of compressing images to six, four and three bits/pixel respectively are also described. The CCC ...



11 Session P16: isosurfaces: BLIC: bi-level isosurface compression

Gabriel Taubin

October 2002 **Proceedings of the conference on Visualization '02**

Publisher: IEEE Computer Society

Full text available:  pdf(561.66 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In this paper we introduce a new and simple algorithm to compress isosurface data. This is the data extracted by isosurface algorithms from scalar functions defined on volume grids, and used to generate polygon meshes or alternative representations. In this algorithm the mesh connectivity and a substantial proportion of the geometric information are encoded to a fraction of a bit per Marching Cubes vertex with a context based arithmetic coder closely related to the JBIG binary image compression ...

Keywords: 3D geometry compression, algorithms, graphics


12 Progressive geometry compression



Andrei Khodakovsky, Peter Schröder, Wim Sweldens

July 2000 **Proceedings of the 27th annual conference on Computer graphics and interactive techniques**

Publisher: ACM Press/Addison-Wesley Publishing Co.

Full text available:  pdf(7.41 MB)

Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

We propose a new progressive compression scheme for arbitrary topology, highly detailed and densely sampled meshes arising from geometry scanning. We observe that meshes consist of three distinct components: geometry, parameter, and connectivity information. The latter two do not contribute to the reduction of error in a compression setting. Using semi-regular meshes, parameter and connectivity information can be virtually eliminated. Coupled with semi-regular wavelet transforms, zerotree c ...

Keywords: compression algorithms, hierarchical representations, semi-regular meshes, signal processing, subdivision surfaces, wavelets, zerotree coding

13 Steganography II: Improving LSB steganalysis using marginal and joint probabilistic distributions



Benoit Roue, Patrick Bas, Jean-Marc Chassery

September 2004 **Proceedings of the 2004 workshop on Multimedia and security MM&Sec '04**

Publisher: ACM Press

Full text available:  pdf(532.05 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The goal of steganalysis is to search for the presence of hidden information in numerical contents. This paper is based on a previous LSB steganalysis scheme for digital images that estimates the size of the hidden message. The accuracy of this algorithm is first outlined, then the limits are presented in order to introduce some solutions based on texture processing: analysis of histograms and cooccurrence matrices are presented and their uses, to improve steganalysis using segmentation, is proposed ...

Keywords: LSB, steganalysis, steganography, texture analysis

14 The user interface and program structure of a graphical VLSI layout editor



Kevin S. B. Szabó, Mohamed I. Elmasry

May 1986 **ACM SIGCHI Bulletin , Proceedings of the SIGCHI/GI conference on Human factors in computing systems and graphics interface CHI '87**, Volume 17 Issue SI

Publisher: ACM Press

Full text available:  pdf(585.97 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this paper the user interface and program organization of the SYMPLE VLSI symbolic layout editor is examined. The user interface is driven by a small interpreter that is constructed from a LISP-like language at run time and has access to a consistent library of menus and graphical information-gathering functions. To improve maintainability, the

editor has been constructed in a modular form with well-defined interfaces.

Keywords: CAD/CAM, VLSI editor, symbolic layout, user interface

15 Vax Station: A General-Purpose Raster Graphics Architecture



H. M. Levy

January 1984 **ACM Transactions on Graphics (TOG)**, Volume 3 Issue 1

Publisher: ACM Press

Full text available:  [pdf\(1.16 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)


16 ILUG Shows Off



Shay Rojansky

September 1996 **Linux Journal**

Publisher: Specialized Systems Consultants, Inc.

Full text available:  [html\(7.59 KB\)](#) Additional Information: [full citation](#)

17 MPEG-4: an object-based multimedia coding standard supporting mobile applications



Atul Puri, Alexandros Eleftheriadis

June 1998 **Mobile Networks and Applications**, Volume 3 Issue 1

Publisher: Kluwer Academic Publishers

Full text available:  [pdf\(747.80 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

The ISO MPEG committee, after successful completion of the MPEG-1 and the MPEG-2 standards is currently working on MPEG-4, the third MPEG standard. Originally, MPEG-4 was conceived to be a standard for coding of limited complexity audio-visual scenes at very low bit-rates; however, in July 1994, its scope was expanded to include coding of scenes as a collection of individual audio-visual objects and enabling a range of advanced functionalities not supported by other standards. One of the ke ...

18 Highly scalable image coding for multimedia applications



Jie Liang

November 1997 **Proceedings of the fifth ACM international conference on Multimedia**

Publisher: ACM Press

Full text available:  [pdf\(1.54 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

19 Modeling and rendering: Web-based progressive geometry transmission using subdivision-surface wavelets



Jens Jessl, Martin Bertram, Hans Hagen

March 2005 **Proceedings of the tenth international conference on 3D Web technology**

Publisher: ACM Press

Full text available:  [pdf\(871.68 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Web-based geometry transmission profits from a transmission system, which is both progressive and compressive. For this application, the wavelet transform has emerged as a suitable tool. We present a new zerotree coding scheme for compressing coefficients resulting from the wavelet transform of B-spline and Catmull-Clark surfaces. It results from a generalization of the original zerotree coding algorithm for image compression. The main idea is the construction of a suitable forest-structure of w ...

Keywords: geometry compression, progressive transmission, subdivision surfaces, wavelet transform, web-based 3D graphics, zerotree coding

20 Technical poster session 1: multimedia analysis, processing, and retrieval:Enhancing security of frequency domain video encryption

Zheng Liu, Xue Li, Zhaoyang Dong

October 2004 **Proceedings of the 12th annual ACM international conference on Multimedia****Publisher:** ACM PressFull text available:  pdf(1.13 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

A potential security problem in frequency domain video encryption is that some trivial information such as the distribution of DCT coefficients may leak out secret. To illuminate this problem, we performed a successful attack on video using the distribution information of DCT coefficients. Then, according to the weak points discovered, a novel video encryption algorithm, working on run-length coded data, is proposed. It has amended identified security problems, while preserving high efficienc ...

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Vladan Devedzic

September 1999 **intelligence**, Volume 10 Issue 3**Publisher:** ACM PressFull text available: [pdf\(6.79 MB\)](#) [html\(42.86 KB\)](#)Additional Information: [full citation](#), [references](#), [index terms](#)

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